Assignment 3

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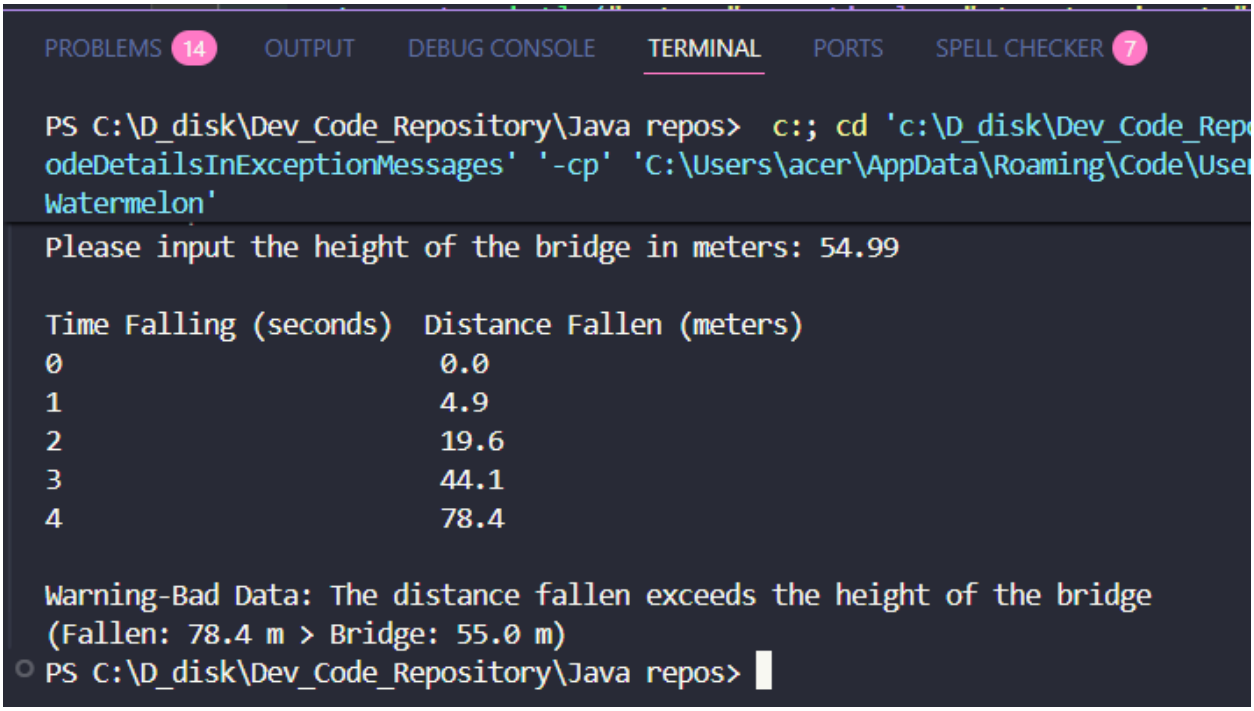
Class: IHST-CS3360IHFA-25TFA

```
import java.util.Scanner;
//problem 1
public class Watermelon {
    public final static double grav = 9.8;
    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);
        System.out.print("Please input the time of fall in seconds: ");
        int maxTime = 0;
        maxTime = s.nextInt();
        if (maxTime < 0) {
            System.out.println("time must be 0 or positive int");
        }
        System.out.print("Please input the height of the bridge in meters: ");
        double h = s.nextDouble();
        System.out.println("\nTime Falling (seconds) \tDistance Fallen
(meters)");
        double totalDistance = 0.0;
        for (int t = 0; t < maxTime; t++) {
            double d = 0.5 * grav * Math.pow(t, 2);
            System.out.println(t + "                        " + d);
            totalDistance = d;
        }
```

```
        if (totalDistance > h) {
            System.out.println("\nWarning-Bad Data: The distance fallen exceeds the height of the bridge");
            System.out.printf("(Fallen: %.1f m > Bridge: %.1f m)\n", totalDistance, h);
        }
        s.close();
    }
}
```

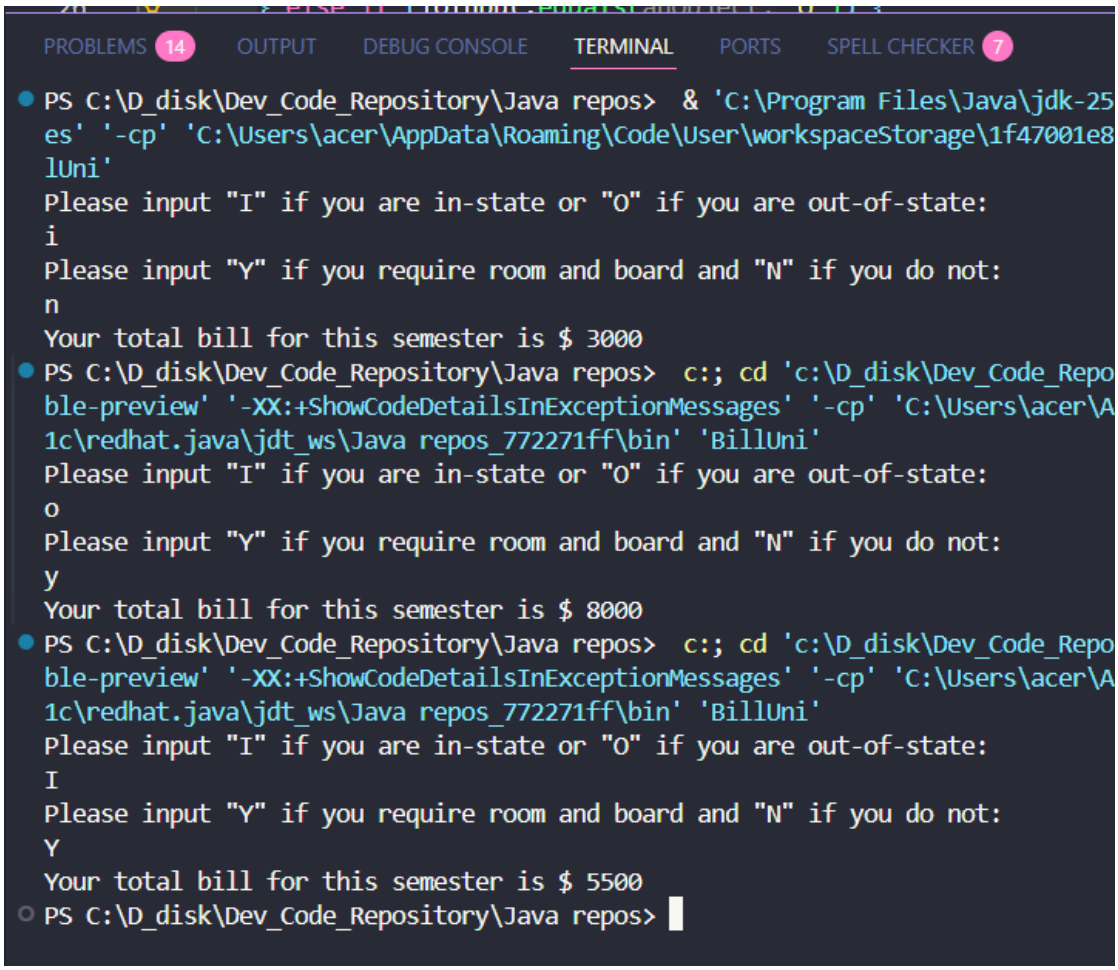
Result:



```
import java.util.Scanner;
//Problem 2:
public class BillUni {
    private final static int inState = 3000;
    private final static int outState = 4500;
    private final static int inWithRoom = 2500;
    private final static int outWithRoom = 3500;
    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);
        int totalBill = 0;
        System.out.println("Please input \"I\" if you are in-state or \"O\" if you
are out-of-state: ");
        String ioInput = s.nextLine().toUpperCase();
        if (ioInput.equals("I")) {
            totalBill += inState;
            System.out.println("Please input \"Y\" if you require room and board
and \"N\" if you do not:");
            String roomInput = s.nextLine().toUpperCase();
            if (roomInput.equals("Y")) {
                totalBill += inWithRoom;
            } else if (!roomInput.equals("N")) {
                System.out.println("Warning: Invalid input for room and board.
Assuming 'N' (No).");
            }
        } else if (ioInput.equals("O")) {
            totalBill += outState;
            System.out.println("Please input \"Y\" if you require room and board
and \"N\" if you do not:");
```

```
            String roomInput = s.nextLine().toUpperCase();
            if (roomInput.equals("Y")) {
                totalBill += outWithRoom;
            } else if (!roomInput.equals("N")) {
                System.out.println("Warning: Invalid input for room and board.
Assuming 'N' (No).");
            }
        } else {
            System.out.println("Invalid resident input. Choose \"I\" or \"O\" only");
            s.close();
        }
        System.out.println("Your total bill for this semester is $ " + totalBill);
        s.close();
    }
}
```

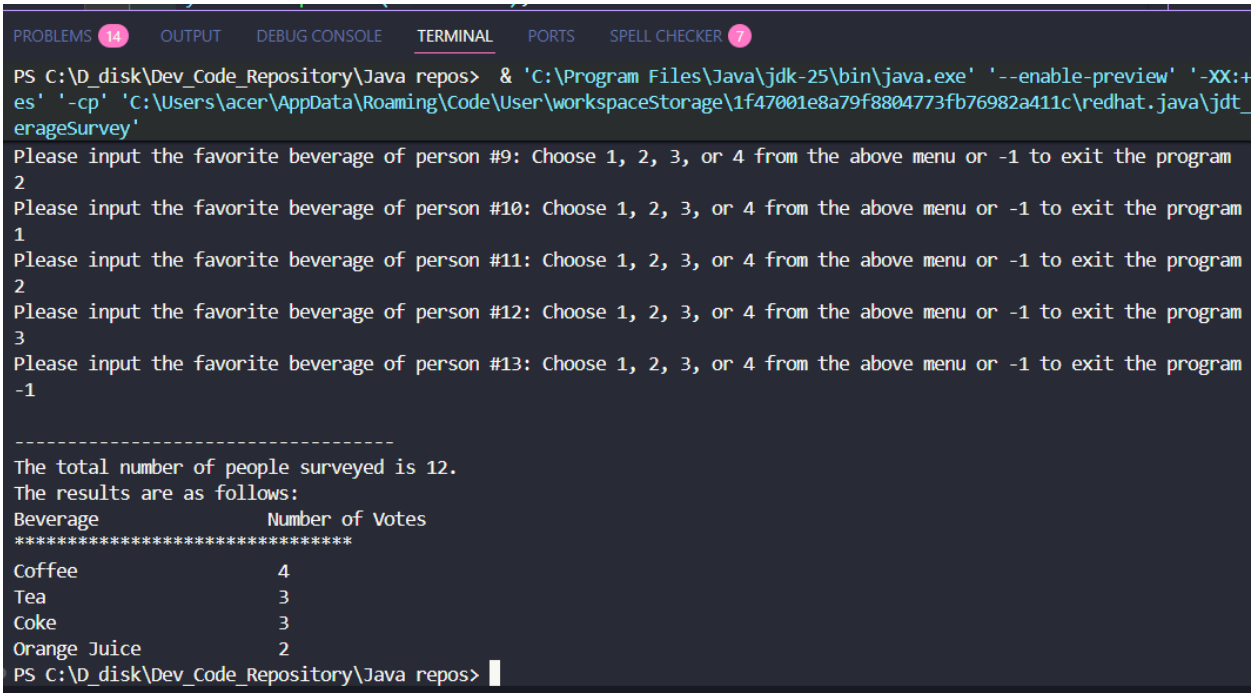
Result:


PROBLEMS 14
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
SPELL CHECKER 7
PS C:\D_disk\Dev_Code_Repository\Java repos> & 'C:\Program Files\Java\jdk-25
es' '-cp' 'C:\Users\acer\AppData\Roaming\Code\User\workspaceStorage\1f47001e8
lUni'
Please input "I" if you are in-state or "O" if you are out-of-state:
i
Please input "Y" if you require room and board and "N" if you do not:
n
Your total bill for this semester is $ 3000
PS C:\D_disk\Dev_Code_Repository\Java repos> c:; cd 'c:\D_disk\Dev_Code_Repo
ble-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\acer\A
1c\redhat.java\jdt_ws\Java repos_772271ff\bin' 'BillUni'
Please input "I" if you are in-state or "O" if you are out-of-state:
o
Please input "Y" if you require room and board and "N" if you do not:
y
Your total bill for this semester is $ 8000
PS C:\D_disk\Dev_Code_Repository\Java repos> c:; cd 'c:\D_disk\Dev_Code_Repo
ble-preview' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\acer\A
1c\redhat.java\jdt_ws\Java repos_772271ff\bin' 'BillUni'
Please input "I" if you are in-state or "O" if you are out-of-state:
I
Please input "Y" if you require room and board and "N" if you do not:
Y
Your total bill for this semester is $ 5500
PS C:\D_disk\Dev_Code_Repository\Java repos>

```
import java.util.Scanner;
//Problem 3
public class BeverageSurvey {
    public static void main(String[] args) {
        Scanner s = new Scanner(System.in);
        int[] votes = new int[4];
        int input = 0;
        int personCount = 1;
        System.out.println("Beverage Menu:");
        System.out.println("1. Coffee");
        System.out.println("2. Tea");
        System.out.println("3. Coke");
        System.out.println("4. Orange Juice");
        System.out.println("-----------------------------------");
        while (input != -1) {
            System.out.printf(
                    "Please input the favorite beverage of person #%d: Choose 1, 2,
3, or 4 from the above menu or -1 to exit the program\n",
                    personCount);
            if (s.hasNextInt()) {
                input = s.nextInt();
            } else {
                System.out.println("Invalid input. Please enter a number.");
                s.next();
                continue;
            }
            if (input == -1) {
```

```
            break;
        }
        if (input >= 1 && input <= 4) {
            votes[input - 1]++;
            personCount++;
        } else {
            System.out.println("Invalid choice. Please choose 1, 2, 3, 4, or -
1.");
        }
    }
    int totalPeopleSurveyed = personCount - 1;
    System.out.println("\n-----------------------------------");
    System.out.println("The total number of people surveyed is " +
totalPeopleSurveyed + ".");
    System.out.println("The results are as follows:");
    System.out.println("Beverage \t\tNumber of Votes");
    System.out.println("*********************************");
    String[] beverageNames = { "Coffee", "Tea", "Coke", "Orange Juice" };
    for (int i = 0; i < votes.length; i++) {
        System.out.printf("%-24s %d\n", beverageNames[i], votes[i]);
    }
    s.close();
  }
}
```

Result:


PROBLEMS 14
OUTPUT
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SPELL CHECKER 7
PS C:\D_disk\Dev_Code_Repository\Java repos> & 'C:\Program Files\Java\jdk-25\bin\java.exe' '--enable-preview' '-XX:+
es' '-cp' 'C:\Users\acer\AppData\Roaming\Code\User\workspaceStorage\1f47001e8a79f8804773fb76982a411c\redhat.java\jdt_
erageSurvey'
Please input the favorite beverage of person #9: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program
2
Please input the favorite beverage of person #10: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program
1
Please input the favorite beverage of person #11: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program
2
Please input the favorite beverage of person #12: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program
3
Please input the favorite beverage of person #13: Choose 1, 2, 3, or 4 from the above menu or -1 to exit the program
-1
The total number of people surveyed is 12.
The results are as follows:
Beverage Number of Votes
Coffee 4
Tea 3
Coke 3
Orange Juice 2
PS C:\D_disk\Dev_Code_Repository\Java repos>

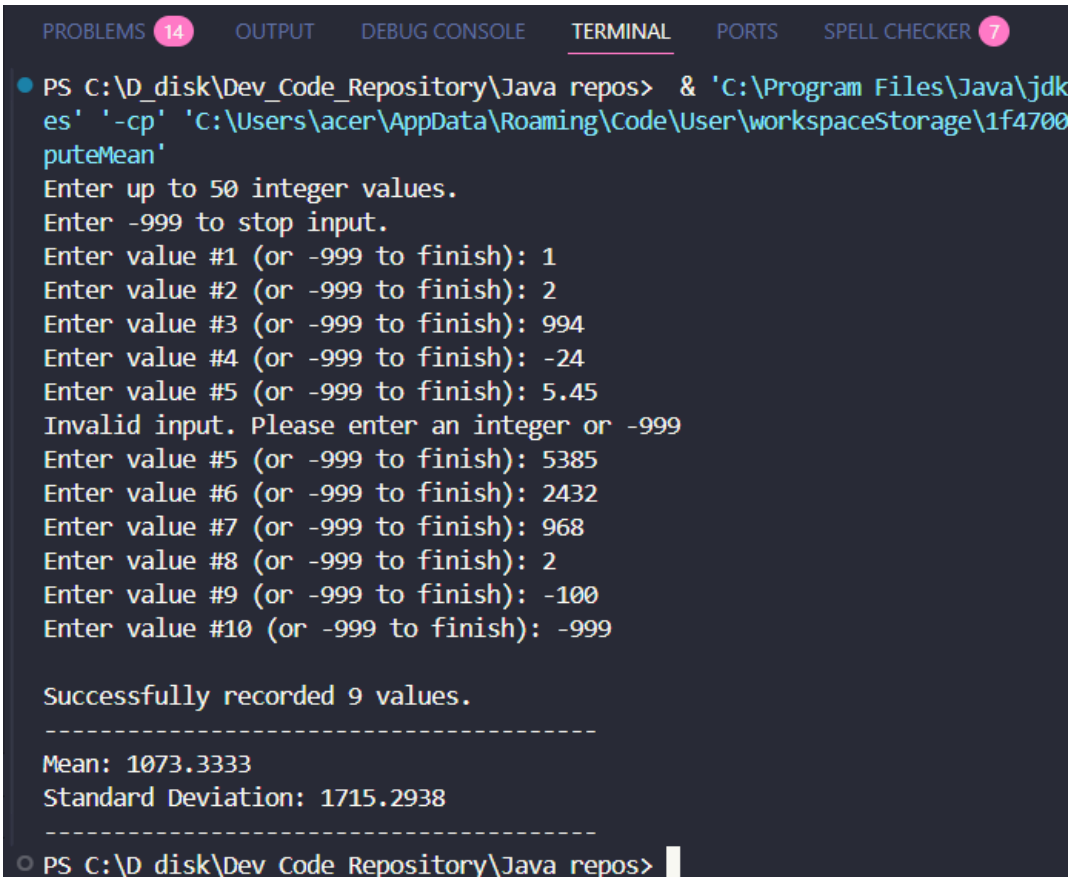
```
import java.util.ArrayList;
import java.util.Iterator;
import java.util.Scanner;
import java.lang.Math;
//Problem 4:
public class ComputeMean {
    private static final int maxInput = 50;
    private static final int setinel = -999;
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        ArrayList<Double> dataList = new ArrayList<>();
        System.out.println("Enter up to " + maxInput + " integer values.");
        System.out.println("Enter " + setinel + " to stop input.");

        while (dataList.size() < maxInput) {
```

```
            System.out.print("Enter value #" + (dataList.size() + 1) + " (or " +
setinel + " to finish): ");
            if (scanner.hasNextInt()) {
                int inputValue = scanner.nextInt();
                if (inputValue == setinel) {
                    break;
                }
                dataList.add((double) inputValue);
            } else {
                System.out.println("Invalid input. Please enter an integer or " +
setinel);
                scanner.next();
            }
        }
        scanner.close();
        if (dataList.isEmpty()) {
            System.out.println("\nNo data entered. Program terminated.");
            return;
        }
        int n = dataList.size();
        System.out.println("\nSuccessfully recorded " + n + " values.");
        // Mean calculation
        double sum = 0.0;
        Iterator<Double> meanIterator = dataList.iterator();
        while (meanIterator.hasNext()) {
            sum += meanIterator.next();
        }
```

```
        double mean = sum / n;
        // Standard deviation calculation
        double sumOfSquaredDifferences = 0.0;
        Iterator<Double> stdDevIterator = dataList.iterator();
        while (stdDevIterator.hasNext()) {
            double xi = stdDevIterator.next();
            double difference = xi - mean;
            // (xi - mean)^2
            sumOfSquaredDifferences += Math.pow(difference, 2);
        }
        double standardDeviation = Math.sqrt(sumOfSquaredDifferences / n);
        System.out.println("----------------------------------------");
        System.out.printf("Mean: %.4f\n", mean);
        System.out.printf("Standard Deviation: %.4f\n", standardDeviation);
        System.out.println("----------------------------------------");
    }
}
```

Result:


PROBLEMS 14
OUTPUT
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PORTS
SPELL CHECKER 7
PS C:\D_disk\Dev_Code_Repository\Java repos> & 'C:\Program Files\Java\jdk
es' '-cp' 'C:\Users\acer\AppData\Roaming\Code\User\workspaceStorage\1f4700
puteMean'
Enter up to 50 integer values.
Enter -999 to stop input.
Enter value #1 (or -999 to finish): 1
Enter value #2 (or -999 to finish): 2
Enter value #3 (or -999 to finish): 994
Enter value #4 (or -999 to finish): -24
Enter value #5 (or -999 to finish): 5.45
Invalid input. Please enter an integer or -999
Enter value #5 (or -999 to finish): 5385
Enter value #6 (or -999 to finish): 2432
Enter value #7 (or -999 to finish): 968
Enter value #8 (or -999 to finish): 2
Enter value #9 (or -999 to finish): -100
Enter value #10 (or -999 to finish): -999
Successfully recorded 9 values.

Mean: 1073.3333
Standard Deviation: 1715.2938

PS C:\D_disk\Dev_Code_Repository\Java repos>